

What is claimed is:

1. An apparatus for generating an extended-format Vendor Specific Attribute (VSA) packet comprising:
 - a RADIUS-complaint server for generating a VSA packet including at least a Vendor-Type field; and

5 wherein said VSA packet includes a Vendor-Extended-Type field if said Vendor-Type field contains a predetermined value.
2. The apparatus of claim 1, wherein said Vendor-Extended-Type field is 32 bits in length.
3. The apparatus of claim 2, wherein said VSA packet has a field sequence of<Type> <Length> <Vendor-ID> <Vendor-Type> <Length> <Vendor-Extended-Type><{Flags}>+} [[<Tag>] [<Salt> ...] <Value>.
4. The apparatus of claim 3, wherein said VSA has field lengths of:

10 Type = 8 bits; Length = 8 bits; Vendor-ID = 32 bits; Vendor-Type 8 bits; Length = 8 bits; Vendor-Extended-Type = 32 bits; and Value = 1 or more bytes.

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5. A method for generating an extended Vendor Specific Attribute (VSA) comprising:

determining whether an extended format VSA is desired;

20 if an extended format VSA is desired, then generating an extended format VSA containing at least a Vendor-Type field having a predetermined value and a Vendor-Extended-Type field.
6. The method of claim 5, wherein said Vendor-Extended-Type field is 32 bits in length.
7. The method of claim 6, wherein said VSA packet has a field sequence of

<Type> <Length> <Vendor-ID> <Vendor-Type> <Length> <Vendor-Extended-Type>
{<Flags>+} {[<Tag>] [<Salt>] ...] <Value>.

8. The method of claim 6, wherein said VSA has field lengths of:
 - Type = 8 bits; Length = 8 bits; Vendor-ID = 32 bits; Vendor-Type 8 bits; Length = 8 bits; Vendor-Extended-Type = 32 bits; and Value = 1 or more bytes.
9. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for generating an extended Vendor Specific Attribute (VSA) comprising:
 - determining whether an extended format VSA is desired;
 - if an extended format VSA is desired, then generating an extended format VSA containing at least a Vendor-Type field having a predetermined value and a Vendor-Extended-Type field.
10. The program storage device of claim 9, wherein said Vendor-Extended-Type field is 32 bits in length.
11. The program storage device of claim 10, wherein said VSA packet has a field sequence of

<Type> <Length> <Vendor-ID> <Vendor-Type> <Length> <Vendor-Extended-Type>
{<Flags>+} {[<Tag>] [<Salt>] ...] <Value>.
12. The program storage device of claim 11, wherein said VSA has field lengths of:
 - Type = 8 bits; Length = 8 bits; Vendor-ID = 32 bits; Vendor-Type 8 bits; Length = 8 bits; Vendor-Extended-Type = 32 bits; and Value = 1 or more bytes.
13. A machine-readable medium including a Vendor Specific Attribute (VSA) packet having a Vendor-Extended-Type that is 32 bits in length.

14. The machine-readable medium of claim 13, wherein said VSA has a field sequence of <Type> <Length> <Vendor-ID> <Vendor-Type> <Length> <Vendor-Extended-Type> <Value>.
15. The machine-readable medium of claim 14, wherein said VSA has field lengths of:

Type = 8 bits; Length = 8 bits; Vendor-ID = 32 bits; Vendor-Type 8 bits; Length = 8 bits; Vendor-Extended-Type = 32 bits; and Value = 1 or more bytes.

16. A method for receiving an extended Vendor Specific Attribute (VSA) comprising:

determining whether a received packet contains an extended format VSA; if said received packet contains an extended format VSA, then reading an extended value contained in a Vendor-Extended-Type field; and if said received packet does not contain an extended format VSA, then processing said received packet as normal.

17. The method of claim 16, wherein said act of determining whether a received packet contains an extended format VSA is performed by examining said received packet to determine whether a Vendor-Type field contains a predetermined value.

18. The method of claim 16, wherein said Vendor-Extended-Type field is 32 bits in length.

19. The method of claim 18, wherein said VSA packet has a field sequence of <Type> <Length> <Vendor-ID> <Vendor-Type> <Length> <Vendor-Extended-Type> {<Flags>+} [[<Tag>] [<Salt>] ...] <Value>.

20. The method of claim 19, wherein said VSA has field lengths of:

Type = 8 bits; Length = 8 bits; Vendor-ID = 32 bits; Vendor-Type 8 bits; Length = 8 bits; Vendor-Extended-Type = 32 bits; and Value = 1 or more bytes.

21. An apparatus for receiving an extended Vendor Specific Attribute (VSA) comprising:
- 5 means for determining whether a received packet contains an extended format VSA;
- means for reading an extended value contained in a Vendor-Extended-Type field if said received packet contains an extended format VSA; and
- means for processing said received packet as normal if said received packet does not contain an extended format VSA.
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22. The apparatus of claim 21, further including means for determining whether a received packet contains an extended format VSA is performed by examining said received packet to determine whether a Vendor-Type field contains a predetermined value.
- 15 23. The apparatus of claim 21, further including means for generating a packet including a Vendor-Extended-Type field 32 bits in length.
24. The apparatus of claim 23, further including means for generating a VSA packet having a field sequence of
- 16 <Type> <Length> <Vendor-ID> <Vendor-Type> <Length> <Vendor-Extended-Type>
20 {<Flags>+} [<Tag>] [<Salt> ...] <Value>.
25. The apparatus of claim 24, further including means for generating a VSA having field lengths of:
- 26 Type = 8 bits; Length = 8 bits; Vendor-ID = 32 bits; Vendor-Type 8 bits; Length = 8 bits; Vendor-Extended-Type = 32 bits; and Value = 1 or more bytes.

26. A method for receiving an extended Vendor Specific Attribute (VSA) by a machine comprising:
- determining whether the machine is capable of receiving a packet containing an extended format VSA;
- if said machine is capable of receiving a packet containing an extended format VSA, then reading an extended value contained in a Vendor-Extended-Type field; and
- if said machine is not capable of receiving a packet containing an extended format VSA, then processing said received packet as normal.
27. The method of claim 26, wherein said act of determining whether machine is capable of receiving a packet containing an extended format VSA is performed by examining said received packet to determine whether a Vendor-Type field contains a predetermined value.
28. The method of claim 26, wherein said Vendor-Extended-Type field is 32 bits in length.
29. The method of claim 28, wherein said VSA packet has a field sequence of
- `<Type> <Length> <Vendor-ID> <Vendor-Type> <Length> <Vendor-Extended-Type> <Flags>+> [<Tag>] [<Salt> ...] <Value>.`
30. The method of claim 29, wherein said VSA has field lengths of:
- Type = 8 bits; Length = 8 bits; Vendor-ID = 32 bits; Vendor-Type 8 bits; Length = 8 bits; Vendor-Extended-Type = 32 bits; and Value = 1 or more bytes.
31. An apparatus for receiving an extended Vendor Specific Attribute (VSA) by a machine comprising:
- means for determining whether the machine is capable of receiving a packet containing an extended format VSA;

means for reading an extended value contained in a Vendor-Extended-Type field if said machine is capable of receiving a packet containing an extended format VSA; and

means for processing said received packet as normal if said machine is not capable of receiving a packet containing an extended format VSA.

5 32. The apparatus of claim 31, further including means for examining said received packet to determine whether a Vendor-Type field contains a predetermined value.

10 33. The apparatus of claim 31, further including means for generating a packet including a Vendor-Extended-Type field 32 bits in length.

15 34. The apparatus of claim 33, further including means for generating a VSA packet having a field sequence of

<Type> <Length> <Vendor-ID> <Vendor-Type> <Length> <Vendor-Extended-Type>
<Flags>+} [<Tag>] [<Salt> ...] <Value>.

15 35. The apparatus of claim 34, further including means for generating a VSA having field lengths of:

Type = 8 bits; Length = 8 bits; Vendor-ID = 32 bits; Vendor-Type 8 bits; Length = 8 bits; Vendor-Extended-Type = 32 bits; and Value = 1 or more bytes.

20 36. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for receiving an extended Vendor Specific Attribute (VSA) comprising:

determining whether a received packet contains an extended format VSA; if said received packet contains an extended format VSA, then reading an extended value contained in a Vendor-Extended-Type field; and

if said received packet does not contain an extended format VSA, then
processing said received packet as normal.

37. The program storage device of claim 36, wherein said act of determining whether
a received packet contains an extended format VSA is performed by examining
5 said received packet to determine whether a Vendor-Type field contains a
predetermined value.

38. The program storage device of claim 36, wherein said Vendor-Extended-Type
field is 32 bits in length.

39. The program storage device of claim 38, wherein said VSA packet has a field
sequence of

<Type> <Length> <Vendor-ID> <Vendor-Type> <Length> <Vendor-Extended-Type>
{<Flags>+} [<Tag>] [<Salt> ...] <Value>.

40. The program storage device of claim 39, wherein said VSA has field lengths of:
Type = 8 bits; Length = 8 bits; Vendor-ID = 32 bits; Vendor-Type 8 bits; Length
= 8 bits; Vendor-Extended-Type = 32 bits; and Value = 1 or more bytes.

41. A program storage device readable by a machine, tangibly embodying a program
of instructions executable by the machine to perform a method for receiving an
extended Vendor Specific Attribute (VSA) by a machine comprising:

determining whether the machine is capable of receiving a packet containing
an extended format VSA;

if said machine is capable of receiving a packet containing an extended format
VSA, then reading an extended value contained in a Vendor-Extended-
Type field; and

if said machine is not capable of receiving a packet containing an extended
format VSA, then processing said received packet as normal.

42. The program storage device of claim 41, wherein said act of determining whether machine is capable of receiving a packet containing an extended format VSA is performed by examining said received packet to determine whether a Vendor-Type field contains a predetermined value.

5 43. The program storage device of claim 41, wherein said Vendor-Extended-Type field is 32 bits in length.

44. The program storage device of claim 43, wherein said VSA packet has a field sequence of

45. The program storage device of claim 44, wherein said VSA has field lengths of:

Type = 8 bits; Length = 8 bits; Vendor-ID = 32 bits; Vendor-Type 8 bits; Length = 8 bits; Vendor-Extended-Type = 32 bits; and Value = 1 or more bytes.

46. An apparatus for generating an extended Vendor Specific Attribute (VSA) comprising:

means for determining whether an extended format VSA is desired;

means for generating an extended format VSA containing at least a Vendor-Type field having a predetermined value and a Vendor-Extended-Type field if an extended format VSA is desired.,

47. The apparatus of claim 46, wherein said Vendor-Extended-Type field is 32 bits in length.

20 48. The apparatus of claim 47, wherein said VSA packet has a field sequence of

<Type> <Length> <Vendor-ID> <Vendor-Type> <Length> <Vendor-Extended-Type>
<{Flags>+>} [<Tag>] [<Salt> ...] <Value>.

49. The apparatus of claim 48, wherein said VSA has field lengths of:

Type = 8 bits; Length = 8 bits; Vendor-ID = 32 bits; Vendor-Type 8 bits; Length = 8 bits; Vendor-Extended-Type = 32 bits; and Value = 1 or more bytes.